

## 6345.0 - Labour Price Index, Australia, Jun 2012

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## Summary

### Main Features



### What's new

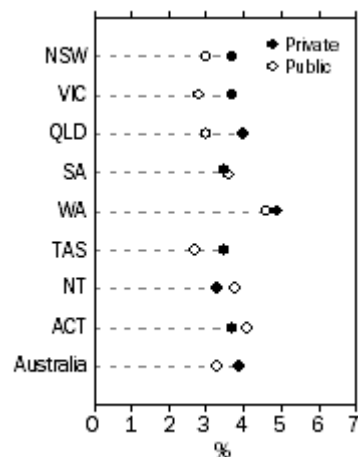
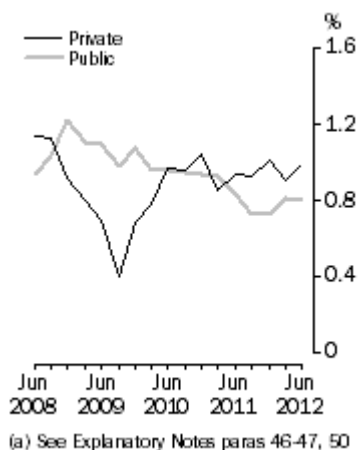
As part of work program reductions caused by the tight budget situation facing the ABS in 2012-13, the ABS is discontinuing the non-wage and labour price indexes. The last data in these series can be found in the September quarter 2011 edition of this publication. Wage price indexes are unaffected by the reductions and will continue to be produced. To reflect the change in content, this publication will be known as **Wage Price Index, Australia** from the September quarter 2012. The catalogue number (6345.0) will remain the same.

### JUNE KEY FIGURES

|   |           | Mar Qtr 2012 to Jun Qtr 2012 | Jun Qtr 2011 to Jun Qtr 2012 |
|---|-----------|------------------------------|------------------------------|
|   |           | % change                     | % change                     |
| <hr/>                                       |           |                              |                              |
| Wage Price Index (WPI)                      |           |                              |                              |
| Total hourly rates of pay excluding bonuses |           |                              |                              |
| Trend(a)                                    |           |                              |                              |
|   | Australia | 0.9                          | 3.7                          |
|   | Sector    |                              |                              |
|   | Private   | 1.0                          | 3.9                          |
|   | Public    | 0.8                          | 3.1                          |
| Original                                    |           |                              |                              |
|   | Australia | 0.7                          | 3.7                          |
|   | Sector    |                              |                              |
|   | Private   | 0.7                          | 3.9                          |
|   | Public    | 0.6                          | 3.3                          |

(a) See Explanatory Notes paragraphs 46-47, 50.

**WPI-Quarterly changes: Trend(a),** Total hourly rates of pay excluding bonuses  
**WPI - Annual change: original,** Total hourly rates of pay excluding bonuses - States/Territories, by sector, Jun Qtr 2012



## JUNE KEY POINTS

### TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES

#### QUARTERLY CHANGE (MAR QTR 2012 TO JUN QTR 2012)

- The index for all employee jobs in Australia rose 0.9%, in trend terms.
- The increase in indexes (in original terms) at the industry level ranged from 0.1% for Accommodation and food services to 1.6% for Wholesale trade.

#### ANNUAL CHANGE (JUN QTR 2011 TO JUN QTR 2012)

- The rise in the trend index through the year to the June quarter 2012 for all employee jobs was 3.7%.
- Increases in the original indexes through the year to the June quarter 2012 at the industry level ranged from 2.6% for Health care and social assistance to 5.2% for Mining.

## NOTES

### FORTHCOMING ISSUES

#### ISSUE (QUARTER)

September 2012

December 2012

March 2013

June 2013

#### Release Date

14 November 2012

20 February 2013

15 May 2013

16 August 2013

### CHANGES IN FUTURE ISSUES

As part of work program reductions caused by the tight budget situation facing the ABS in 2012-13, the ABS is discontinuing the non-wage and labour price indexes. The last data in

these series can be found in the September quarter 2011 edition of this publication. Wage price indexes are unaffected by the reductions and will continue to be produced. More detail on these changes can be found on page 4.

## **ABS DATA AVAILABLE ON REQUEST**

Original indexes are compiled for various combinations of state/territory, sector and broad industry group. Indexes not included in this publication may be made available on request by telephoning Luci Burrage in Perth on (08) 9360 5151 or email [labour.price.index@abs.gov.au](mailto:labour.price.index@abs.gov.au).

## **DATA REFERENCES**

Data referenced in the Key Points and Commentary are available from the tables shown in this publication or in the corresponding tables of this publication on the ABS website <<https://www.abs.gov.au>>.

## **INQUIRIES**

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070 or Luci Burrage on Perth (08) 9360 5151.

# **Changes in Future Issues**

## **CHANGES IN FUTURE ISSUES**

### **RECENT DEVELOPMENTS**

As part of work program reductions caused by the tight budget situation facing the ABS in 2012-13, the ABS is discontinuing the non-wage and labour price indexes. The last data in these series can be found in the September quarter 2011 edition of this publication. Wage price indexes are unaffected by the reductions and will continue to be produced.

### **DISCONTINUED INDEXES**

Four non-wage indexes were constructed and published annually each September quarter. These indexes were first compiled for the 2001-02 financial year, and cover:

- annual and public holiday leave index
- superannuation index
- payroll tax index
- workers' compensation index.

These four non-wage indexes were combined with the total hourly rates of pay indexes to produce two total labour price indexes:

- labour price index including bonuses
- labour price index excluding bonuses.

These indexes have been discontinued with the last data in the series relating to the 2010-11 financial year. Historical data for these indexes can be found in the September quarter 2011 edition of this publication, and the corresponding time series spreadsheets on the ABS website.

## **WAGE PRICE INDEX**

The wage price indexes, which do not include non-wage components, will be unaffected by the above changes and will continue to be published quarterly. The four wage price indexes are:

- ordinary time hourly rates of pay excluding bonuses index
- ordinary time hourly rates of pay including bonuses index
- total hourly rates of pay excluding bonuses index
- total hourly rates of pay including bonuses index.

To reflect the change in content, this publication will be known as **Wage Price Index, Australia** from the September quarter 2012. The catalogue number (6345.0) will remain the same.

## **TIMING OF CHANGES**

These changes will take effect from the September quarter 2012 issue of this publication.

## **FURTHER INFORMATION**

To obtain further information on the impact of these changes please contact John Jones on (08) 9360 5296 or email [labour.price.index@abs.gov.au](mailto:labour.price.index@abs.gov.au).

# **Commentary**

## **COMMENTARY**

### **WAGE PRICE INDEXES**

#### **Australia/Sector (trend)**

In the June quarter 2012, the Public sector wage price index rose 0.8%, lower than the Private sector (1.0%) and the All sectors wage price index which rose 0.9%.

The Public sector rise of 3.1% through the year to the June quarter 2012 was below that of the Private sector (3.9%). Private sector wages continued to show stronger growth than the

Public sector.

### State/Territory (original)

Western Australia recorded the largest quarterly All sectors rise (0.9%) while the Northern Territory recorded the smallest (0.4%). New South Wales (0.5%) was the only state or territory to record a quarterly rise that was lower than in the June quarter 2011 (0.6%). Tasmania (0.6%) and the Northern Territory (0.4%) both recorded the same quarterly rise as in the June quarter 2011. Rises through the year ranged from 3.2% for Tasmania to 4.8% for Western Australia.

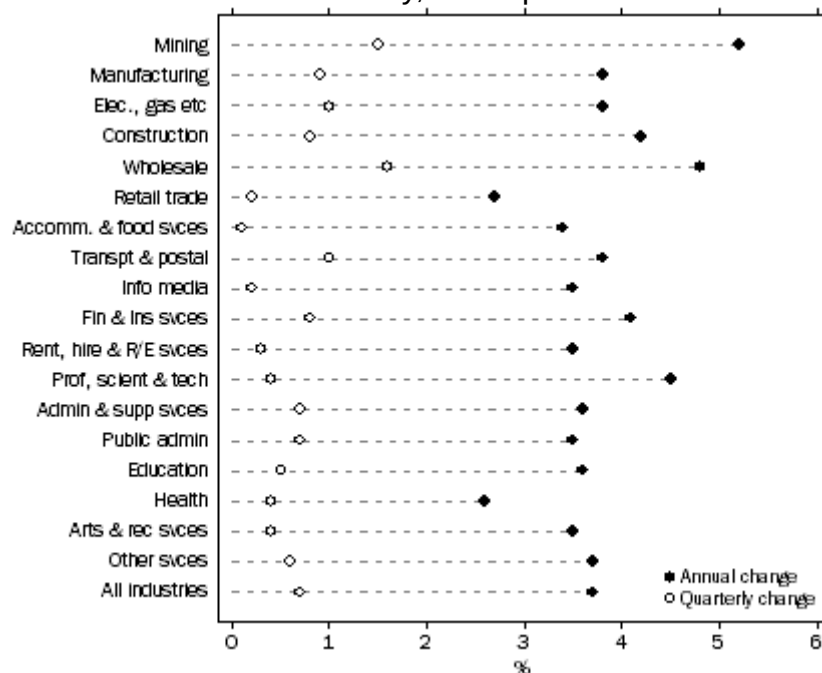
In the Private sector, Victoria and Western Australia recorded the largest quarterly rise of 0.9%, while the Australian Capital Territory recorded the smallest (0.3%). Rises through the year in the Private sector ranged from 3.3% for the Northern Territory to 4.9% for Western Australia.

In the Public sector, Western Australia and the Australian Capital Territory recorded the largest quarterly rise of all states and territories (1.1%) while New South Wales, Queensland, South Australia and the Northern Territory all recorded the smallest quarterly rise (0.4%).

The largest through the year rise of all states and territories in the Public sector was recorded by Western Australia (4.6%) while Tasmania recorded the smallest (2.7%).

### Industry (original)

#### WPI - Annual and Quarterly changes: original, Total hourly rates of pay excluding bonuses - Industry, June quarter 2012



In the June quarter 2012, Wholesale trade (1.6%) recorded the largest quarterly rise for All sectors. The smallest rise for All sectors in the June quarter 2012 was 0.1%, recorded by Accommodation and food services. Through the year, the largest All sectors rise was 5.2% recorded by Mining. The smallest All sectors through the year rise was recorded by Health

care and social assistance (2.6%).

Wholesale trade recorded the largest quarterly rise in the Private sector of 1.6%. The smallest quarterly rise (0.1%) was recorded by Accommodation and food services.

In the Public sector, Electricity, gas, water and waste services had the largest quarterly rise (1.1%) while Professional, scientific and technical services and, Health care and social assistance had the smallest (0.2%).

## Use of Price Indexes in Contracts

### USE OF PRICE INDEXES IN CONTRACTS

#### INTRODUCTION

Price indexes published by the **Australian Bureau of Statistics (ABS)** provide summary measures of the movements in various categories of prices over time. They are published primarily for use in Government economic analysis.

Price indexes are also often used in contracts by businesses and government to adjust payments and/or charges to take account of changes in categories of prices (**Indexation Clauses**).

This paper sets out a range of issues that should be taken into account by parties considering including an Indexation Clause in a contract using an ABS published price index.

#### THE ROLE OF THE ABS IN RESPECT OF INDEXATION CLAUSES

Although the ABS acknowledges that the various price indexes it publishes are used by businesses and government to adjust payments and/or charges, it neither endorses nor discourages such use.

The role of the ABS as the central statistical authority for the Australian government includes publishing price index data, and broadly explaining the underlying methodology and general limitations on such data. The ABS may provide information about what price indexes are published by it, but will not recommend or comment on the use (or otherwise) of the price indexes. In addition, the ABS does not advise, comment or assist in preparing or writing contracts and nor does it provide advice on disputes arising from contract interpretation.

#### IMPORTANT DISCLAIMER

This paper is intended to summarise information about the various price indexes currently published by the ABS and some of the issues which should be considered by persons in deciding to use such price indexes in Indexation Clauses. It is a brief description only and is not a comprehensive or exhaustive description of price indexes or of the issues which should be considered by persons in deciding to use price indexes or Indexation Clauses.

Neither the ABS, the Commonwealth of Australia, nor their employees, advisers or agents will in any way be liable to any person or body for any cost, expense, loss, claim or damage of any nature arising in any way out of or in connection with the statements, opinions or other representations, actual or implied, contained in or omitted from this paper or by reason of any reliance thereon by any person or body. This paper is not business, investment, legal or tax advice and persons should seek their own independent professional advice in respect of all matters in connection with the use of price indexes published by the ABS and their use in Indexation Clauses.

No representation or assurance is given that any ABS published price indexes are accurate, without error or appropriate for use by persons or that the ABS will continue to publish any of the price indexes, publish them at a particular time or that the methodologies for their determination will not be changed or that they will be suitable for use in any Indexation Clauses.

## **WHAT PRICE INDEXES ARE PUBLISHED BY THE ABS?**

The **Consumer Price Index (CPI)** is regarded as Australia's key measure of inflation. It is designed to provide a general measure of price inflation for the Australian household sector as a whole. The CPI measures changes over time in the prices of a wide range of consumer goods and services acquired by Australian metropolitan households and it is published quarterly, three to four weeks after the end of the reference quarter. It is revised only in exceptional circumstances, such as to correct a significant error. As is the case with all price indexes, the reference base (i.e. the period in which the index is set equal to 100.0) will be changed periodically. The index number levels for all periods will be changed by this process and it may also result in differences, due to rounding, between the percentage changes published on the old base and those on the new base.

Several **Producer Price Indexes (PPIs)** are produced and published. Economy wide indexes are presented within a stage of production framework together with a set of indexes relating to specific industries (selected manufacturing, construction, mining and service industries). PPIs can be constructed as either output measures or input measures. Output indexes measure changes in the prices of goods and/or services sold by defined industry groupings while, input indexes measure changes in the prices of goods and/or services purchased by a particular industry grouping. PPIs are published quarterly, three to four weeks after the end of the reference quarter. Once published, the PPIs are revised infrequently, sometimes to incorporate improved methods in one or more of the components and occasionally to correct an error. As is the case with all price indexes, the reference base (i.e. the period in which the index is set equal to 100.0) will be changed periodically. The index number levels for all periods will be changed by this process and it may also result in differences, due to rounding, between the percentage changes published on the old base and those on the new base.

The **International Trade Price Indexes** are intended to broadly measure changes in the prices of goods imported into Australia (the **Import Price Index (IPI)**) and goods exported from Australia (the **Export Price Index (EPI)**). The prices measured in the indexes exclude import duties, and exclude freight and insurance charges incurred in shipping goods between foreign and Australian ports. As the prices used in the indexes are expressed in Australian currency, changes in the relative value of the Australian dollar and overseas currencies can have a direct impact on price movements for the many commodities that are bought and sold in currencies other than Australian dollars. Both the IPI and EPI are published quarterly, three to four weeks after the end of the reference quarter. The IPI and EPI are not often revised. As is the case with all price indexes, the reference base (i.e. the period in which the index is set equal to 100.0) will be changed periodically. The index

number levels for all periods will be changed by this process and it may also result in differences, due to rounding, between the percentage changes published on the old base and those on the new base.

The **Labour Price Index (LPI)** broadly measures annual changes in the price of labour in the Australian labour market. The **Wage Price Index (WPI)** broadly measures changes in the wages paid by Australian businesses to employees and it is compiled and published quarterly, about six to seven weeks after the end of the reference quarter. The non-wage price indexes and the aggregate labour price index are only produced annually in respect of financial years ending 30 June. Individual indexes are compiled for various combinations of State/Territory, sector (private/public), and broad industry groups. The 'headline' wage price index is that for the total hourly rates of pay, excluding bonuses, for Australia, and it is published in original, seasonally adjusted and trend terms. The seasonally adjusted and trend series for some quarters are revised as extra quarters are included in the series analysed for seasonal influences, but the non-seasonally adjusted (i.e. original) series is not revised in normal circumstances. As is the case with all price indexes, the reference base (i.e. the period in which the index is set equal to 100.0) will be changed periodically. The index number levels for all periods will be changed by this process and it may also result in differences, due to rounding, between the percentage changes published on the old base and those on the new base.

The **House Price Index (HPI)** is designed to provide a measure of the inflation or deflation in the price of the stock of established houses over time. Separate indexes are produced for each capital city in Australia, and these indexes are combined to produce a weighted average index of the eight capital cities. The HPI is published quarterly, approximately five weeks after the end of the reference quarter. The figures published for the two most recent quarters are regarded as preliminary and are revised in subsequent publications as more data is collected. As is the case with all price indexes, the reference base (i.e. the period in which the index is set equal to 100.0) will be changed periodically. The index number levels for all periods will be changed by this process and it may also result in differences, due to rounding, between the percentage changes published on the old base and those on the new base.

The **Analytical Living Cost Indexes (ALCIs)** are designed to measure the impact of changes in out-of-pocket living expenses of four Australian household types; employee, age pensioner, other government transfer recipient and self-funded retiree households. The ALCIs are an analytical series produced as a by-product of the CPI, with the main conceptual difference being the ALCIs are constructed on an outlays basis, while the CPI is constructed on an acquisitions basis. The ALCI is published quarterly, approximately seven weeks after the end of the reference quarter. It is revised only in exceptional circumstances, such as to correct a significant error. As is the case with all price indexes, the reference base (i.e. the period in which the index is set equal to 100.0) will be changed periodically. The index number levels for all periods will be changed by this process and it may also result in differences, due to rounding, between the percentage changes published on the old base and those on the new base.

The **Pensioner and Beneficiary Living Cost Index (PBLCI)** is designed to assess the impact of changes in out-of-pocket living expenses of households whose principal source of income is from government pensions and benefits. The PBLCI is an analytical series produced as a by-product of the CPI, with the main conceptual difference being the PBLCI is constructed on an outlays basis, while the CPI is constructed on an acquisitions basis. The PBLCI is published quarterly, approximately seven weeks after the end of the reference quarter. It is revised only in exceptional circumstances, such as to correct a significant error. As is the case with all price indexes, the reference base (i.e. the period in which the index is set equal to 100.0) will be changed periodically. The index number levels for all periods will



be changed by this process and it may also result in differences, due to rounding, between the percentage changes published on the old base and those on the new base.

Price indexes covering a wide range of economic transactions are produced as part of the **National Accounts**. Two types of national accounts based price index are published. The first type is referred to as **chain-price-indexes** which are calculated for all expenditure components and subcomponents of **Gross Domestic Product (GDP)**. The components are: government consumption, household consumption, private capital formation, public capital formation, and imports and exports of goods and services. Chain price indexes are also calculated for GDP and other macroeconomic aggregates such as Domestic Final Demand and Gross National Expenditure. Chain price indexes use as their weights the volumes of expenditure in the previous financial year (ending 30 June). The second type of price index is referred to as **implicit price deflators (IPDs)** which are compiled at the same levels as for the chain price indexes but which use for their weights the volumes of expenditure in the current period. IPDs have long been used to provide macro-economic measures of price change and are usually used in seasonally adjusted form. Both chain price indexes and IPDs are compiled quarterly and are published roughly two months after the reference period. Unlike the other price indexes listed above, the National Accounts price indexes are often revised, sometimes to a significant extent. In addition, they are re-referenced to a new base year every year, so the level of the index changes regularly, although the percentage changes for earlier periods are not normally affected by this process, other than for rounding differences. These two characteristics are important considerations if National Accounts price indexes are to be used in contracts.

## **GENERAL MATTERS TO CONSIDER WHEN DEVELOPING INDEXATION CLAUSES USING A PRICE INDEX**

Considerable care should be taken when considering and using Indexation Clauses. Appropriate professional advice should be obtained when considering the use of an Indexation Clause or any ABS published price indexes.

The following are some general matters to consider when considering an ABS published price index in an Indexation Clause. It is not an exhaustive list. These matters are provided subject to the disclaimer outlined above.

- **Establish the base payment, selling or purchase price subject to indexation.** Specify the item subject to indexation as precisely as possible (e.g. rent, wage rate, commodity, etc.). Provide the effective date (e.g. quarter or year) of this base price, because it is the period from which the base payment, etc. will be indexed. Indicate the relationship between the effective date of the base payment, etc. and the price index being used in the indexation (e.g. a contract coming into effect on 5 January 2005 could have a price indexed using the most recent available quarterly data (in this case, September quarter 2004) as its starting point or by using the 2003-04 financial year as the starting point, depending on the intent of the parties).
- **Select an appropriate index or indexes.** The index or indexes selected will affect the price change recorded and should be chosen carefully to best represent the item subject to indexation and the intention of the parties.
- **Clearly identify the selected index and cite an appropriate source.** The Indexation Clause of a contract should identify the selected index by its complete title and any identifying code. For example, in the case of the CPI, it should be specified whether the index to be used is the All groups CPI, or a selected sub component index of the CPI, and also whether it is the weighted average of the eight capital cities or for a particular city. In the case of PPIs, the broad alternatives that could be specified are stage-of-production, or commodity, or industry based indexes. The specific component

index being used should be explicitly identified. For LPIs, the broad characteristics that could be specified are national, state or industry group indexes. When considering the HPI, it should be specified whether the index is the preliminary or final index, and also whether it is the weighted average of the eight capital cities or an index for a particular city. With respect to the ALCIs, the index should be identified by household type. Contracting parties should cite specific index series rather than table numbers and/or table titles in their indexation contracts because table numbers and the contents of tables are subject to change.

- **State the frequency of price adjustment.** The Indexation Clause should specify the frequency at which price adjustments are to be made, such as quarterly, half yearly, annually etc. It may be useful to set out the method to be used in calculating the indexation factor, particularly if the indexation is half-yearly or annually. For example, different results are generally obtained for annual estimates calculated as the change in the latest quarter over the same quarter of the preceding year (e.g. June quarter 2004 over June quarter 2003) compared with those calculated as the average of the latest four quarters over the average of the preceding four quarters (e.g. the average of the four quarters from September quarter 2003 to June quarter 2004 over the average of the four quarters from September quarter 2002 to June quarter 2003). Similar issues apply to half yearly changes.
- **Provide for renamed, varied or discontinued price indexes.** Occasionally price indexes can be reviewed or restructured, which may result in some component index series being renamed, discontinued or the timing of the publication of the index changed. Sometimes an index is permanently discontinued (for example, when a commodity declines in market importance). Indexation Clauses should contain a default mechanism for determining an equivalent appropriate index or price adjustment mechanism should this occur.
- **Provide for potential revisions to the price index data.** The quarterly and annual movements recorded by the ABS price indexes are not often revised (apart from the seasonally adjusted wage price index and trend wage price index, which can be revised as extra terms are added to the end of the series). Generally, situations in which revisions do occur include correcting an error that has arisen in the data first published. It could be useful for parties to set out agreed procedures to deal with the possibility of revisions occurring. For example, an Indexation Clause could state that a price is to be indexed by the percentage change first published in the relevant (indexation) series for each period covered by the contract, or it could be indexed by the latest available data at the point at which the indexation clause takes effect.
- **Avoid locking indexes used for Indexation Clauses into any particular reference base period.** Occasionally the reference base period of a price index (i.e. the period in which the index is set equal to 100.0) can be changed. This will result in a change in the index level from that which was previously available. Relative movements of any series over time, however, are not generally affected by a reference base change (except for rounding differences). Indexation Clauses should be drafted so that the parties to them are not adversely affected by a change to the reference base period of a price index.
- **Define the formula for the price adjustment calculation.** Often the change in payments or price is directly proportional to the percentage change in the selected index between two specified time periods. The following CPI example, which has a reference base year of 1989-90 = 100.0, illustrates the computation of percentage change:
  - Index number for the All Groups CPI for Sydney in 2003-04 = 144.1
  - less index number for the corresponding series in 2002-03 = 141.1
  - Change in index points = 3.0
  - Percentage change  $3.0/141.1 \times 100 = 2.1\%$
- **Allow for negative price movements.** Any potential variations from the recorded price movements should be explicitly set out. For example, in some Indexation

Clauses, there is no change in the contract price in a period in which there is a fall in the price index being used for indexation. In some cases, there will be a catch up once the index rises again.

For further information about ABS price indexes, contact the National Information and Referral Service on 1300 135 070.

## About this Release

The Labour Price Index measures changes in the price of labour services resulting from market pressures, and is unaffected by changes in the quality or quantity of work performed. It is unaffected by changes in the composition of the labour force, hours worked, or changes in characteristics of employees (e.g. work performance). Information about the wage price indexes has been released for each quarter since September 1997. Individual indexes are published for various combinations of state and territory, public and private sectors, and broad industry groups.

# Explanatory Notes

## Explanatory Notes

### EXPLANATORY NOTES

#### INTRODUCTION

**1** This publication contains indexes measuring changes in the price of labour in the Australian labour market.

**2** The methodology used to construct the wage, non-wage and labour price indexes (LPI) is similar to that used for other price indexes such as the Consumer Price Index. In the LPI, index numbers are compiled using information collected from a representative sample of employee jobs within a sample of employing organisations. Individual indexes are compiled for various combinations of state/territory, sector (private/public) and broad industry group. Industry is classified according to the **Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006** (cat. no. 1292.0). Prior to September quarter 2009, the ANZSIC 1993 version of the classification was used. Wage price indexes for broad occupation groups have been discontinued with the last data in the series relating to the September quarter 2008. Appendix 3 of the December quarter 2008 edition of this publication outlines where to find historical data for occupation based indexes. That appendix also contains a concordance between the old and new publication tables as a result of these series ceasing. For more detailed information on the methodology used in the construction of the LPI, refer to **Labour Price Index: Concepts, Sources and Methods** (cat. no. 6351.0.55.001).

#### PUBLISHED INDEXES

**3** Four wage price indexes are constructed and published quarterly. These indexes were first compiled for the September quarter 1997, and cover:

- ordinary time hourly rates of pay excluding bonuses index
- ordinary time hourly rates of pay including bonuses index
- total hourly rates of pay excluding bonuses index
- total hourly rates of pay including bonuses index.

In these indexes the term 'bonuses' refers to bonuses and commissions.

**4** Four non-wage price indexes are constructed. These are financial year indexes and were first compiled for the 2001-02 financial year. The non-wage indexes cover:

- annual and public holiday leave
- superannuation
- payroll tax
- workers' compensation.

**5** From the individual wage and non-wage components a labour price index can be constructed. Two versions of the labour price index are produced and, like the non-wage price indexes, they are financial year indexes (first compiled for 2001-02):

- labour price index excluding bonuses
- labour price index including bonuses.

**6** The full set of LPs is updated annually in the September quarter LPI publication. In all other quarters a summary LPI table is published as an appendix to the publication.

## **DESIGN OF THE INDEXES**

### **BROAD DESCRIPTION**

**7** The wage, non-wage and labour price indexes measure changes over time in the price of labour unaffected by changes in the quality or quantity of work performed. A range of procedures have been developed to identify and measure quality and quantity changes and ensure that only pure price changes are reflected in the indexes.

**8** Price-determining characteristics of the jobs are detailed in fixed pricing specifications and any changes in labour payments due to changes in the pricing specifications do not contribute to index movements. The following are examples of changes in price-determining characteristics which are not reflected in index movements:

- changes in the nature of work performed (e.g. different tasks or responsibilities)
- changes in the quantity of work performed (e.g. the number of hours worked)
- changes in the characteristics of the job occupant (e.g. age, apprenticeship year, successful completion of training or a qualification, grade or level, experience, length of service, etc.)
- changes in the location where the work is performed.

**9** Changes in the price of labour resulting from changes in the composition of the labour market are also excluded from index movements. To achieve this, price movements for each segment of the labour market (defined by state/territory, sector and industry) are combined

using expenditure weights that remain constant between successive weighting base periods.

## WAGE PRICE INDEXES

**10** The **ordinary time hourly rates of pay indexes** that **exclude bonuses** measure quarterly changes in ordinary time hourly wage and salary rates. Changes in rates of pay reflected in these indexes (i.e. pure price changes) arise from a range of sources including award variations, enterprise and workplace agreements, minimum wage setting, individual contracts and informal arrangements.

**11** These indexes are not affected by changes in:

- penalty payments for overtime, shifts, weekends and public holidays (which fluctuate depending on the number of hours paid at penalty rates)
- allowances (which fluctuate according to how much work is performed under special work conditions e.g. height, dirt, heat allowances)
- bonus payments (which may, or may not, relate to an individual's work performance). These payments are specifically excluded when calculating ordinary time hourly wage and salary rates.

**12** The effect of rolling ordinary time penalty payments and allowances into ordinary time hourly rates is excluded from these indexes. However, when overtime penalty payments are rolled into ordinary time hourly rates, the ordinary time indexes will increase accordingly.

**13** The **total hourly rates of pay indexes** that **exclude** bonuses are based on a weighted combination of ordinary time hourly wage and salary rates (described in paragraphs 10 and 11) and overtime hourly rates. As a result, the total hourly indexes reflect changes in both the ordinary time and overtime hourly rates. However, the effect of changes in the amount of overtime paid at each overtime rate is not shown in these indexes.

**14** Only those indexes that **exclude** bonuses and commissions are pure price indexes because bonus and commission payments can reflect changes in the quality of work performed. No attempt is made to remove this quality element from the indexes that include bonuses and commissions.

**15** A review of the treatment of bonuses and commissions resulted in methodological changes in the March quarter 2006. Details of these changes and the likely impact on the indexes that include bonuses and commissions can be found in each of the 2006 editions of this publication.

## NON-WAGE PRICE INDEXES

**16** The **annual and public holiday leave index** is calculated using both ordinary time hourly wage and salary rates, and the amount of annual and public holiday leave offered by employers. Pure price changes in either of these variables will reflect in the index. The index specifically prices leave **entitlements** and therefore will not show changes due to fluctuations in the actual amount of leave taken by job occupants.

**17** The **superannuation index** is calculated using ordinary time hourly wage and salary rates, and the rate of superannuation that is paid by employers. Pure price changes in either of these variables will be reflected in the index. Superannuation payments equal to and

above the legislated minimum specified in the **Superannuation Guarantee Act 1992** are included in the index. Amounts that are salary sacrificed to superannuation are included in the wage price indexes and not the superannuation index.

**18** The **payroll tax and workers' compensation indexes** are calculated differently to the other wage and non-wage indexes. As these costs are both levied at the employer level, the indexes are calculated using total payroll information rather than rates of pay data. The separate indexes are derived by applying either payroll tax rates/thresholds or workers' compensation premium rates to the total payroll data. The indexes reflect pure price changes in total payroll and either changes in the payroll tax rates/thresholds or workers' compensation premium rates.

**19** Data quality concerns exist in relation to the workers' compensation premium rates for the ACT private sector. Until these concerns are resolved, these data will be imputed based on industry averages across Australia. Workers' compensation index numbers for the ACT private sector will not be published separately.

## **LABOUR PRICE INDEXES**

**20** Two labour price indexes (one including bonuses and one excluding them) are constructed from the individual wage and non-wage components. As with the wage price indexes, only the labour price index that excludes bonuses is a pure price index because bonuses tend to reflect, at least partly, changes in the quality of work performed.

## **SCOPE AND COVERAGE**

**21** The target population of employers for the LPI is all employing organisations in Australia (private and public sectors) except:

- enterprises primarily engaged in agriculture, forestry or fishing
- private households employing staff
- foreign embassies, consulates, etc.

**22** A sample redesign of the LPI was undertaken and the outcome implemented from the December quarter 2009. A result of this review was to stop collecting data on a quarterly basis from micro businesses (0-4 employment). The size and frequency of pay changes for jobs in micro businesses was found to be the same as businesses with employment of five or more. Therefore, micro businesses are now treated as being out of coverage of the LPI but remain in scope through their continued inclusion in the expenditure weights used in compiling the LPI. The introduction of this change does not impact what the LPI is measuring.

**23** All employee jobs in the target population of employers are in scope of the LPI, except the following:

- Australian permanent defence force jobs
- non-salaried directors
- proprietors/partners of unincorporated businesses
- persons paid by commission only
- working proprietors/owner managers of Pty Ltd companies
- employees on workers' compensation who are not paid through the payroll
- 'non-maintainable' jobs (i.e. jobs that are expected to be occupied for less than six

months of a year)

- jobs for which wages and salaries are not determined by the Australian labour market (e.g. most employees of Community Development Employment Programs, or jobs where the remuneration is set in a foreign country).

**24** As such, full-time, part-time, permanent, casual, managerial and non-managerial jobs are in scope of the LPI. Costs incurred by employers for work undertaken by self-employed persons such as consultants and subcontractors are out-of-scope of the LPI, as they do not relate to employee jobs.

## **DATA COLLECTION**

**25** Information for the wage price indexes is collected each quarter by mail questionnaires from a sample survey of private and public sector employers selected from the ABS Business Register. The survey reference date is the last pay period ending on or before the third Friday of the middle month of the quarter, except for bonuses which are collected in respect to those paid during the three month period ending on the third Friday of the middle month of the quarter. In the first quarter they participate in the survey, each employer selects a sample of jobs from their workplace(s) using sampling instructions provided by the ABS, and provides information for these jobs, including detailed pricing specifications. In subsequent quarters they are asked to provide details of payments made to the current occupants of these same jobs. It is essential that the same jobs are priced in successive quarters, whether the individual job occupants are the same or not. Approximately 18,000 matched jobs are priced each quarter from the selected employers.

**26** The sampling method retains the highest possible common sample of employers over time, and retains the same sampled jobs within those employers where possible. However, it is also necessary to ensure the LPI continues to be relevant and representative over time. For these reasons, the employer sample is refreshed annually (for the December quarter) in a way that ensures a high proportion of common selections while allowing new employers to be represented in the sample. Refreshing the sample also allows the ABS to control the length of time that small businesses are included in the sample.

**27** Between each annual refresh of the employer sample, a small number of employee jobs will be lost from the survey sample because of the closure of some businesses. In addition, some jobs in continuing businesses will be replaced in the sample because of restructuring and other job changes.

**28** Annual leave and superannuation information is collected from the same job sample as that used to construct the wage price indexes. However, data are only collected annually as part of the June quarter LPI survey. Changes in the job sample due to factors such as the annual refreshing of the employer sample, together with the requirement of pricing the same jobs in successive years, reduces the number of matched jobs used to calculate the annual and public holiday leave index and the superannuation index compared with the matched jobs underlying the wage price indexes.

**29** Information from administrative and other ABS data sources is used to construct the payroll tax and workers' compensation indexes, as well as the public holiday component of the annual and public holiday leave index.

## **WEIGHTING**

**30** In the LPI, as with other price indexes, expenditure weights are used to combine elementary aggregates into broader level indexes. Expenditure weights reflect changes in the distribution of the number of employee jobs among industries, states/territories and sectors, as well as changes in labour cost relativities. These weights are derived from independent estimates of labour costs for each elementary aggregate. The estimates are sourced from other ABS surveys. The main source of estimates for updating expenditure weights in LPI is the Survey of Major Labour Costs (MLC). However, due to the time that has elapsed since the last MLC survey was conducted, estimates from the biennial Survey of Employee Earnings and Hours (EEH) are being used. The 2010 EEH has been used for the December quarter 2011 update. The use of an alternative source was considered necessary to ensure the most contemporary pattern of employer expenditure for labour among each segment of the labour market (elementary aggregate) was used. Appendix 1 shows the distribution of employers' expenditure on wages and salaries, updated in the December quarter 2011.

**31** To facilitate comparison of index numbers over time, the published indexes are not re-referenced (i.e. reset to 100.0) each time this re-weighting occurs. Instead, the series based on the old expenditure weights and the series based on the new weights are linked via an arithmetic calculation, which is referred to as chaining. This provides a continuous series from the commencement of the index, while incorporating the updated expenditure weights.

## INTERPRETATION OF INDEX NUMBERS

**32** Index numbers in this publication measure changes in the price of labour between the commencement of the series and a later period. Index number levels cannot be compared across states/territories as they do not provide comparative information on the relative levels of labour costs. Similarly, index number levels cannot be compared across sectors or industries. The usefulness of index numbers stems from the fact that index numbers for any two periods can be used to directly calculate the change or movement in the price of labour between the two periods. These **movements** can be compared across states/territories, sectors or industries.

## PERCENTAGE CHANGE AND ROUNDING

**33** The published index numbers have been rounded to one decimal place, and the percentage changes (also rounded to one decimal place) are calculated from the rounded index numbers. In some cases, this can result in the percentage change for the total level of a group of indexes being outside the range of the percentage changes for the component level indexes. Seasonally adjusted and trend quarterly estimates are calculated from unrounded original indexes. The percentage changes (rounded to one decimal place) are calculated from the rounded index numbers.

## INDEX MOVEMENTS

**34** Movements in indexes from one period to another can be expressed either as changes in index points or as percentage changes. In this publication, percentage changes are calculated to illustrate three different kinds of movements in indexes:

- movements between consecutive quarters
- movements between corresponding quarters of consecutive years (i.e. changes 'through the year')
- movements between consecutive financial years.



**35** The following example illustrates the method of calculating changes in index points and percentage changes between any two periods:

**Total hourly rates of pay excluding bonuses**, All Sectors, Australia Index numbers, trend (see table 1)  
June quarter 2012 112.5  
**less** June quarter 2011 108.5  
Change in index points 4.0  
Percentage change  $4.0/108.5 \times 100 = 3.7\%$

## FINANCIAL YEAR INDEXES

**36** Index numbers for financial years are calculated as simple (arithmetic) averages of the four quarterly index numbers for the financial year. As the wage price indexes were first produced for the September quarter 1997, the first financial year index number that can be calculated is for 1997-98. Consequently, the first percentage change between financial years that can be calculated is between 1997-98 and 1998-99. The following example illustrates the method of calculating the financial year index number for 2011-12:

**Total hourly rates of pay excluding bonuses**, Australia Index numbers, original (see table 2)  
September quarter 2011 109.5  
**plus** December quarter 2011 110.5  
**plus** March quarter 2012 111.4  
**plus** June quarter 2012 112.2  
Financial year 2011-12  $443.6/4 = 110.9$

**37** Percentage changes between the index numbers for any two financial years can be calculated using the method outlined in paragraph 35 above.

## SEASONALLY ADJUSTED INDEXES

**38** Seasonally adjusted estimates are derived by estimating and removing systematic calendar related effects from the original series. In most economic data these calendar related effects are a combination of the classical seasonal influences (e.g. the effect of the weather, social traditions or administrative practices) plus other kinds of calendar related variations, such as the number of trading days, Easter or the proximity of significant days in the year (e.g. Christmas). In the seasonal adjustment process, both seasonal and other calendar related factors evolve over time to reflect changes in activity patterns. The seasonally adjusted estimates reflect the sampling and non-sampling errors to which the original estimates are subject.

**39** The **total hourly rates of pay excluding bonuses index** is the only index of the LPI that is seasonally adjusted. Institutional effects largely drive the seasonality of this index. Important factors in determining this seasonality are the timing of effect of agreements, the length of these agreements, and the timing of the implementation of significant wage determinations that impact on rates of pay. A significant institutional change in wage setting arrangements can affect the relative level (or trend) and seasonality of the index.

**40** Prior to 2006, the Australian Industrial Relations Commission (AIRC) handed down annual Safety Net Review (SNR) decisions which set federal full-time minimum award rates. Since the commencement of the wage price index, the SNR contributed to the level of the wage price index. Most of its impact on the wage price index was in the September quarter with some residual effect in the December quarter each year. This impact contributed to the level of seasonality for those quarters. As a result of industrial relations changes associated with WorkChoices there was no SNR decision in 2006. The setting of federal minimum wage rates became the responsibility of the Australian Fair Pay Commission (AFPC).

**41** The AFPC's first decision was handed down on 26 October 2006 with a date of effect of 1 December 2006. The impact on the wage price index of the first AFPC ruling was mainly in the March quarter 2007. From 2007 to 2009, AFPC determinations have impacted the December quarter wage price index.

**42** On 1 July 2009 Fair Work Australia began operations as part of a new national workplace relations system underpinned by the Fair Work Act 2009. In June 2010 Fair Work Australia announced its first annual minimum wage decision: an increase of \$26 a week, effective from 1 July 2010. The increase in minimum wage rates impacted the wage price index in the September quarter 2010.

**43** Fair Work Australia minimum wage decisions are expected to continue to take effect in the September quarter of each year for the foreseeable future. This change in timing of minimum wage decisions is expected to see the original index increase more in the September quarter than in other quarters. To account for the change in timing, the seasonally adjusted and trend series were reanalysed in the September quarter 2010 to remove the influence of the different timing of minimum wage decisions in any year on the wage price index.

## **CONCURRENT SEASONAL ANALYSIS**

**44** The LPI uses a concurrent seasonal adjustment methodology to derive the adjustment factors. This method uses the original time series available at each reference period to estimate seasonal factors for the current and previous quarters. Concurrent seasonal adjustment is technically superior to the more traditional method of reanalysing seasonal patterns once each year because it uses all available data to fine tune the estimates of the seasonal component each quarter. With concurrent analysis, the seasonally adjusted series are subject to revision each quarter as the estimates of the seasonal factors are improved. In most instances, the only significant revisions will be to the combined adjustment factors for the previous quarter and for the same quarter in the preceding year as the reference quarter (i.e. if the latest quarter is  $Q_t$  then the most significant revisions will be to  $Q_{t-1}$  and  $Q_{t-4}$ ). Seasonal patterns are also reanalysed when there are known changes to regular events. This can lead to additional revisions.

## **ARIMA MODELLING**

**45** The ABS uses Autoregressive Integrated Moving Averages (ARIMA) modelling techniques to produce seasonally adjusted estimates. ARIMA modelling is a technique that can be used to extend original estimates beyond the end of a time series. The extended values are temporary, intermediate values, that are used internally to improve seasonal adjustment. They do not affect the original estimates and are discarded at the end of the seasonal adjustment process. The use of ARIMA modelling generally results in a reduction in revisions to the seasonally adjusted estimates when subsequent data becomes available.

ARIMA modelling in the LPI was introduced in the June quarter 2008. For more information on the details of ARIMA modelling see the feature article 'Use of ARIMA modelling to reduce revisions' in the October 2004 issue of **Australian Economic Indicators** (cat. no. 1350.0).

## TREND ESTIMATES

**46** The trend is a measure of the underlying direction of a series. The ABS trend estimates for the wage price index are derived by applying a 7-term Henderson-weighted moving average to all quarters of the respective seasonally adjusted indexes except the first three and last three quarters. Trend estimates are created for these quarters by applying surrogates of the 7-term Henderson weighted moving average to the seasonally adjusted indexes, tailored to each time series. In general, trend estimates give a better indication of underlying behaviour than the seasonally adjusted estimates. Please refer to the ABS Information Paper, **A Guide to Interpreting Time Series - Monitoring Trends** (cat. no. 1349.0).

**47** Increases in minimum wage rates contribute to the relative level (or trend) of the wage price index. A review of the seasonally adjusted series was undertaken in the September quarter 2010 to remove the impacts of the different timing of the increases in minimum wage rates. A trend break correction has been applied between the June quarter and the September quarter 2009 to remove the shift in the underlying level as a result of no increase to minimum wage rates being awarded in 2009.

## REFERENCE BASE PERIOD

**48** The reference base period of an index series is that period for which the value of the index is set to 100.0. It is most commonly a year but can also be a different length of time, ranging from two or three years down to a single quarter. It often coincides with the weighting base for the series, but this is not essential. The September quarter 1997 was used as the original reference base for the wage price indexes as it was the first quarter for which data was available. With the introduction of the non-wage indexes, the reference base was changed to 2003-04.

**49** With the implementation of the Australian and New Zealand Standard Industrial Classification 2006, all indexes are presented on a reference base of 2008-09. An explanation of the re-referencing process is included in Appendix 2.

## REVISIONS TO INDEXES

**50** Original index numbers will be released as final figures at the time they are first published. Revisions will only occur in exceptional circumstances. Trend and seasonally adjusted indexes for some quarters will be revised as extra quarters are included in the series analysed for seasonal influences (see paragraphs 38 to 47).

## RELATED PUBLICATIONS

**51** Users may also wish to refer to the following publications which are available free on the ABS website <<https://www.abs.gov.au>>:

**Labour Price Index: Concepts, Sources and Methods**, (cat. no. 6351.0.55.001)

**Information Paper: Update on ANZSIC 2006 Implementation for Labour Price Index, Australia, 2009**, (cat. no. 6345.0.55.001)  
**Consumer Price Index, Australia**, (cat. no. 6401.0)  
**House Price Indexes, Eight Capital Cities**, (cat. no. 6416.0)  
**International Trade Price Indexes, Australia**, (cat. no. 6457.0)  
**Producer Price Indexes, Australia**, (cat. no. 6427.0)  
**Australian Consumer Price Index: Concepts, Sources and Methods**, (cat. no. 6461.0)  
**Producer and International Trade Price Indexes: Concepts, Sources and Methods**, (cat. no. 6429.0)  
**Australian Labour Market Statistics**, (cat. no. 6105.0)

**52** Current publications and other products released by the ABS are listed on the ABS website <<https://www.abs.gov.au>>. The ABS also issues a daily Release Advice on the website which details products to be released in the week ahead.

## **ABS DATA AVAILABLE ON REQUEST**

**53** As well as the statistics included in this and related publications, the ABS may have other relevant data available on request. Inquiries should be made to Luci Burrage on Perth (08) 9360 5151 or the National Information and Referral Service on 1300 135 070.

# **Glossary**

## **GLOSSARY**

### **Annual and public holiday leave index**

Measures changes in the price of annual and public holiday leave (see Explanatory Notes paragraph 16).

### **Bonuses**

Payments made to a job occupant that are in addition to regular wages and salaries and which generally relate to the job occupant's, or the organisation's, performance. In the LPI, the term 'bonuses' refers to bonuses and commissions.

### **Elementary aggregates**

The finest aggregations of jobs, in terms of state/territory, sector and industry group, for which expenditure weights are available.

### **Employee job**

A job for which the occupant receives remuneration in wages, salary, payment in kind, or piece rates.

### **Employer**

Organisation with one or more employees.

### **Expenditure weights**

A measure of the relative importance of each elementary aggregate, based on employers' total expenditure on the LPI component being considered (e.g. wages and salaries, superannuation, etc.). Expenditure weights are used to combine elementary aggregate indexes into broader level indexes.

### **Index number**

Measures the ratio of the price of labour between the commencement of the index series and a later period.

### **Industry**

Classified according to the **Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006** (cat. no. 1292.0).

### **Labour price index**

Measures changes in the price of labour. Includes wages and salaries, overtime, bonuses (only in the labour price including bonuses index), annual and public holiday leave, superannuation, payroll tax and workers' compensation (see Explanatory Notes paragraph 20).

### **Ordinary time hourly rates of pay index**

Measures quarterly change in ordinary time hourly rates of pay (see Explanatory Notes paragraphs 10 and 11).

### **Ordinary time hours**

Award, standard or agreed hours of work paid for at the ordinary rate.

### **Overtime hours**

The number of hours paid for in excess of ordinary time hours.

### **Payroll tax index**

Measures changes in the price of payroll tax (see Explanatory Notes paragraph 18).

### **Reference base period**

The period for which an index series is given the value of 100.0. The current reference base for the LPI is the 2008-09 financial year.

### **Reference date**

The reference date for this survey is the last pay period ending on or before the third Friday of the middle month of the quarter, except for bonuses which are collected in respect to those paid during the three month period ending on the third Friday of the middle month of the quarter.

## **Sector**

Public sector comprises local government authorities and all government departments and agencies created by, or reporting to, the Commonwealth, or state/territory parliaments. The private sector comprises all organisations not classified as public sector.

## **Seasonal adjustment**

Process of removing systematic calendar related effects from the original series (see Explanatory Notes paragraphs 38-45, 50).

## **Superannuation index**

Measures changes in the price of superannuation (see Explanatory Notes paragraph 17).

## **Total hourly rates of pay index**

Measures quarterly change in combined ordinary time and overtime hourly rates of pay (see Explanatory Notes paragraph 13).

## **Trend**

A measure of the underlying direction of a series (see Explanatory Notes paragraphs 46-47, 50).

## **Wage price index**

Measures changes in the price of wages.

## **Weighting base**

The period to which the expenditure weights relate.

## **Workers' compensation index**

Measures changes in the price of workers' compensation (see Explanatory Notes paragraphs 18 and 19).

# **Abbreviations**

## **ABBREVIATIONS**

|     |                                 |
|-----|---------------------------------|
| ABS | Australian Bureau of Statistics |
| LPI | labour price index              |
| WPI | wage price index                |

# **Distribution of expenditure on wages (Appendix)**

## APPENDIX 1 DISTRIBUTION OF EXPENDITURE ON WAGES

AS UPDATED DECEMBER QUARTER 2011

### A1 DISTRIBUTION OF EMPLOYERS' EXPENDITURE ON WAGES<sup>(a)(b)</sup>

|   | Private<br>% | Public<br>%  | Total<br>%   |
|---|--------------|--------------|--------------|
| Australia by sector                             |              |              |              |
| <b>Australia</b>                                | <b>75.6</b>  | <b>24.4</b>  | <b>100.0</b> |
| Sector by State/Territory                       |              |              |              |
| New South Wales                                 | 33.6         | 28.9         | 32.5         |
| Victoria  | 25.3         | 20.4         | 24.1         |
| Queensland                                      | 18.7         | 19.5         | 18.9         |
| South Australia                                 | 6.3          | 7.8          | 6.7          |
| Western Australia                               | 12.1         | 11.6         | 12.0         |
| Tasmania  | 1.5          | 2.8          | 1.8          |
| Northern Territory                              | 1.0          | 1.9          | 1.2          |
| Australian Capital Territory                    | 1.6          | 7.2          | 2.9          |
| <b>Australia</b>                                | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> |
| Sector by broad industry group(c)               |              |              |              |
| Mining  | 4.5          | (d)          | 3.4          |
| Manufacturing                                   | 13.1         | (d)          | 9.9          |
| Electricity, gas, water and waste services      | 0.8          | 4.4          | 1.7          |
| Construction                                    | 9.2          | (d)          | 7.1          |
| Wholesale trade                                 | 6.7          | (d)          | 5.1          |
| Retail trade                                    | 8.1          | (d)          | 6.2          |
| Accommodation and food services                 | 4.4          | (d)          | 3.4          |
| Transport, postal and warehousing               | 5.0          | (d)          | 5.3          |
| Information media and telecommunications        | 2.9          | (d)          | 2.3          |
| Financial and insurance services                | 7.7          | (d)          | 6.0          |
| Rental, hiring and real estate services         | 2.2          | (d)          | 1.8          |
| Professional, scientific and technical services | 11.1         | 2.1          | 8.9          |
| Administrative and support services             | 6.1          | (d)          | 4.6          |
| Public administration and safety                | 0.9          | 33.6         | 8.9          |
| Education and training                          | 3.7          | 28.6         | 9.8          |
| Health care and social assistance               | 8.4          | 21.6         | 11.6         |
| Arts and recreation services                    | 1.2          | (d)          | 1.2          |
| Other services                                  | 3.9          | (d)          | 2.9          |
| <b>All industries</b>                           | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> |

(a) See paragraphs 30-31 of the Explanatory Notes.

(b) Components may not sum to 100.0 due to rounding.

(c) Classified according to the **Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006** (cat. no. 1292.0).

(d) For the public sector, these industries are combined and included in the 'All industries' total.

## Re-referencing the Wage Price Index (Appendix)

### APPENDIX 2 RE-REFERENCING THE WAGE PRICE INDEX

#### REFERENCE BASE

The reference base of an index series is that period for which the value of the index is set to

100.0. With the introduction of the 2006 edition of ANZSIC, all indexes are now presented on a reference base of 2008-09. Since the September quarter 2004, the LPI has used a reference base of 2003-04 = 100.0. Prior to this time the reference base for the wage price indexes was the September quarter 1997. This was the first quarter for which data was available.

## CONVERTING A SERIES TO THE NEW REFERENCE BASE

The conversion of series from the old base to the new base involves a rescaling of the index numbers. The conversion factor that should be applied to the index numbers is calculated by obtaining the ratio of the index numbers on the old and new bases for the new reference period.

The conversion factor is calculated using the **unrounded** index number for the 2008-09 financial year. The calculation of financial year indexes is outlined in paragraph 36 of the Explanatory Notes.

For example, for the **total hourly rates of pay excluding bonuses index** for Australia, an arithmetic conversion factor is obtained as follows:

Index number for financial year 2008-09 (on base 2003-04 = 100.0) is 121.775  
Index number for financial year 2008-09 (on base 2008-09 = 100.0) is 100.0  
Conversion factor =  $100/121.775 = 0.8212$

The factor may be multiplied by any **total hourly rates of pay excluding bonuses index** number for Australia on the old reference base to give the corresponding number on the new reference base. The procedure shown in the above example may be followed in respect of any specific index series for which index numbers have been published on the old reference base, with the exception of industry index series. It is not appropriate to convert the ANZSIC 1993 industry series on the 2003-04 reference base in previous issues to the 2008-09 reference base using this method.

## ROUNDING

Index numbers and percentage changes are always published to one decimal place, with the percentage changes being calculated from the rounded index numbers. Index numbers for periods longer than a single quarter (e.g. for financial years) are calculated as the simple arithmetic average of the relevant rounded quarterly index numbers. The conversion factor described above is applied to the rounded index numbers.

A consequence of re-referencing price indexes can be that period to period percentage changes calculated using re-referenced index number series may differ slightly from those calculated using the original series. These differences do not constitute a revision of the index but simply reflect the effect of rounding.

## CONVERTING THE RE-REFERENCED SERIES BACK TO THE PREVIOUS BASE

The conversion of series from the new base to the old base also involves a rescaling of the index numbers. The rescaling factor is obtained by taking the inverse of the previously described scaling factor.



For example, for the **total hourly rates of pay excluding bonuses index** for Australia, the rescaling factor is obtained as follows:

Index number for financial year 2008-09 (on base 2003-04 = 100.0) is 121.775

Index number for financial year 2008-09 (on base 2008-09 = 100.0) is 100.0

Conversion factor =  $121.775/100 = 1.2178$

The factor may be multiplied by any **total hourly rates of pay excluding bonuses index** number for Australia on the new reference base to give the corresponding number on the old reference base. As mentioned above, the industry price index series in previous issues should not be converted due to the use of two different industry classifications.

Conversion factors for most of the published **total hourly rates of pay excluding bonuses indexes** are provided in table A2. Additional factors can be obtained using the formulas above or by contacting Luci Burrage on Perth (08) 9360 5151.

## CONVERSION FACTORS

### A2 FACTORS USED TO CONVERT INDEX NUMBERS, from old reference base (2003-04 financial year = 100.0) - to new reference base (2008-09 financial year = 100.0)

|   | Private       | Public        | All sectors   |
|---|---------------|---------------|---------------|
| <b>Australia</b>                                | <b>0.8242</b> | <b>0.8122</b> | <b>0.8212</b> |
| Sector by State/Territory                       |               |               |               |
| New South Wales                                 | 0.8349        | 0.8119        | 0.8292        |
| Victoria  | 0.8294        | 0.8259        | 0.8285        |
| Queensland                                      | 0.8155        | 0.8055        | 0.8128        |
| South Australia                                 | 0.8294        | 0.8071        | 0.8234        |
| Western Australia                               | 0.7842        | 0.8013        | 0.7880        |
| Tasmania  | 0.8236        | 0.8021        | 0.8165        |
| Northern Territory                              | 0.8120        | 0.8300        | 0.8195        |
| Australian Capital Territory                    | 0.8302        | 0.8105        | 0.8173        |
| Sector by Industry(a)                           |               |               |               |
| Mining  | 0.7720        | ..            | 0.7720        |
| Manufacturing                                   | 0.8263        | ..            | 0.8248        |
| Electricity, gas, water and waste services      | 0.8073        | 0.7940        | 0.7988        |
| Construction                                    | 0.7885        | ..            | 0.7895        |
| Wholesale trade                                 | 0.8328        | ..            | 0.8328        |
| Retail trade                                    | 0.8395        | ..            | 0.8393        |
| Accommodation and food services                 | 0.8660        | ..            | 0.8660        |
| Transport, postal and warehousing               | 0.8270        | ..            | 0.8255        |
| Information media and telecommunications        | 0.8493        | ..            | 0.8455        |
| Financial and insurance services                | 0.8213        | ..            | 0.8195        |
| Rental, hiring and real estate services         | 0.8393        | ..            | 0.8358        |
| Professional, scientific and technical services | 0.8058        | 0.8180        | 0.8068        |
| Administrative and support services             | 0.8395        | ..            | 0.8395        |
| Public administration and safety                | 0.8303        | 0.8110        | 0.8118        |
| Education and training                          | 0.8030        | 0.8043        | 0.8045        |
| Health care and social assistance               | 0.8208        | 0.8200        | 0.8203        |
| Arts and recreation services                    | 0.8353        | ..            | 0.8358        |
| Other services                                  | 0.8365        | ..            | 0.8365        |

.. not applicable

## Summary of non-wage and Labour Price Indexes (Appendix)

### APPENDIX 3 SUMMARY OF NON-WAGE AND LABOUR PRICE INDEXES

#### NON-WAGE AND LABOUR PRICE INDEXES

##### A3 NON-WAGE AND LABOUR PRICE INDEXES<sup>(a)</sup>, Sector

|   | Index numbers <sup>(b)</sup> |              |              |              | Change from previous financial year (%) |            |            |
|---|------------------------------|--------------|--------------|--------------|---|------------|------------|
|   | 2007-08                      | 2008-09      | 2009-10      | 2010-11      | 2008-09                                 | 2009-10    | 2010-11    |
| <b>Annual and Public Holiday Leave</b>      |                              |              |              |              |   |            |            |
| Private                                     | 100.5                        | 100.0        | 105.9        | 110.1        | -0.5                                    | 5.9        | 4.0        |
| Public                                      | 99.3                         | 100.0        | 106.9        | 111.1        | 0.7                                     | 6.9        | 3.9        |
| <i>All sectors</i>                          | <i>100.3</i>                 | <i>100.0</i> | <i>106.2</i> | <i>110.4</i> | <i>-0.3</i>                             | <i>6.2</i> | <i>4.0</i> |
| <b>Superannuation</b>                       |                              |              |              |              |   |            |            |
| Private                                     | 96.4                         | 100.0        | 103.1        | 107.2        | 3.7                                     | 3.1        | 4.0        |
| Public                                      | 96.4                         | 100.0        | 104.5        | 108.7        | 3.7                                     | 4.5        | 4.0        |
| <i>All sectors</i>                          | <i>96.4</i>                  | <i>100.0</i> | <i>103.4</i> | <i>107.5</i> | <i>3.7</i>                              | <i>3.4</i> | <i>4.0</i> |
| <b>Payroll Tax</b>                          |                              |              |              |              |   |            |            |
| Private                                     | 98.0                         | 100.0        | 101.1        | 104.5        | 2.0                                     | 1.1        | 3.4        |
| Public                                      | 98.0                         | 100.0        | 103.0        | 105.4        | 2.0                                     | 3.0        | 2.3        |
| <i>All sectors</i>                          | <i>98.0</i>                  | <i>100.0</i> | <i>101.5</i> | <i>104.7</i> | <i>2.0</i>                              | <i>1.5</i> | <i>3.2</i> |
| <b>Workers' Compensation</b>                |                              |              |              |              |   |            |            |
| Private                                     | 101.1                        | 100.0        | 104.4        | 106.9        | -1.1                                    | 4.4        | 2.4        |
| Public                                      | 100.5                        | 100.0        | 105.5        | 108.9        | -0.5                                    | 5.5        | 3.2        |
| <i>All sectors</i>                          | <i>101.0</i>                 | <i>100.0</i> | <i>104.6</i> | <i>107.2</i> | <i>-1.0</i>                             | <i>4.6</i> | <i>2.5</i> |
| <b>Labour Price Index Excluding Bonuses</b> |                              |              |              |              |   |            |            |
| Private                                     | 96.6                         | 100.0        | 103.0        | 107.1        | 3.5                                     | 3.0        | 4.0        |
| Public                                      | 96.4                         | 100.0        | 104.5        | 108.7        | 3.7                                     | 4.5        | 4.0        |
| <i>All sectors</i>                          | <i>96.6</i>                  | <i>100.0</i> | <i>103.4</i> | <i>107.5</i> | <i>3.5</i>                              | <i>3.4</i> | <i>4.0</i> |

(a) Refer to paragraphs 16-20 of Explanatory Notes for a description of the indexes.

(b) Reference base of each index: 2008-09 = 100.0

# Quality Declaration - Summary

## INSTITUTIONAL ENVIRONMENT

For information on the institutional environment of the Australian Bureau of Statistics (ABS), including the legislative obligations of the ABS, financing and governance arrangements, and mechanisms for scrutiny of ABS operations, please see. ABS Institutional Environment

## RELEVANCE

The Labour Price Index measures change in the price of labour services, unaffected by changes in the quality and quantity of work performed (that is, indexes are unaffected by compositional change). It enables analysts and policy makers to assess the impact of changes in wage and non-wage costs on the labour market, the economy more generally, households and the community. The survey results are used in formulating industrial relations, wages policies and economic analysis.

Wages and salaries account for the majority of expenditure on labour costs by employers. The 'headline' measure of the wage price index is the index for total hourly rates of pay excluding bonuses. Wage price indexes are released for state and territory; sector (private/public) and broad industry groups.

- Industry is classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 (cat. no. 1292.0). Prior to September quarter 2009, the ANZSIC 1993 version of the classification was used.
- Wage price indexes for broad occupation groups have been discontinued, with the last data in the series relating to the September quarter 2008. For information about where to find the historical occupation series, refer to Appendix 3 of the December quarter 2008 edition of the Labour Price Index publication.

Four non-wage price indexes are produced for financial years relating to annual and public holiday leave, employer funded superannuation, payroll tax, and workers' compensation.

From the individual wage and non-wage components, a labour price index can be constructed. Like the wage price indexes, non-wage and labour price indexes are available for various combinations of state/territory, sector and industry.

## TIMELINESS

Wage price indexes have been produced each quarter commencing from September quarter 1997. The survey reference date is the last pay period ending on or before the third Friday of the middle month of the quarter, except for bonuses which are collected in respect to those paid during the three month period ending on the third Friday of the middle month of the quarter. Wage price indexes are released about three months after the reference date.

Non-wage indexes are produced in respect of financial years. The full set of non-wage indexes are updated in the September quarter edition of the Labour Price Index publication, with the other editions containing a summary.

## ACCURACY

There are two principle sources of error in surveys, sampling error and non-sampling error. Non-sampling error arises from inaccuracies in collecting, recording and processing the data. Every effort has been made to reduce non-sampling error in the Labour Price Index by:

- careful design and testing of questionnaires and processing systems by providing instructions to businesses on how to select a sample of employee jobs
- detailed checking of completed survey forms
- instituting a range of procedures to ensure that jobs are priced to constant quality and quantity.

Sampling error occurs when a sample or subset of the population is surveyed rather than the entire population. One measure of the likely difference resulting from not including all of the population in the survey is given by the standard error. While the selection of employers and employee jobs are based on sampling techniques, standard errors are not available for the labour price index. While it is reasonably straightforward to calculate sampling errors for a level estimate such as the total number of employees jobs, it is not so straightforward to determine standard errors for the LPI which uses both sampling and index methodologies.

Original index numbers are released as final figures at the time they are first published. Revisions have never occurred and will only occur in exceptional circumstances. Trend and seasonally adjusted indexes are revised as extra quarters are included and seasonal factors are updated.

## **COHERENCE**

The methodology used to construct the LPI is similar to that used for other price indexes produced by the ABS such as the Consumer Price Index and the Producer Price Indexes. The sample for the LPI, is selected from the ABS Business Register which is primarily based on registrations to the Australian Taxation Office's Pay As You Go Withholding scheme.

Employers are classified to an industry using the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 (cat. no. 1292.0). Up until June quarter 2009, the content and format of tables containing industry data reflected the 1993 version. Indexes for previous periods have been reproduced on an ANZSIC 2006 basis by reclassifying the businesses that reported data in earlier periods to the appropriate industry division of ANZSIC 2006. Index movements for Australia, state/territory, sector and All industries original series were not affected by the introduction of the new industry classification. Details about the change to ANZSIC 2006 are outlined in *Information Paper: Update on ANZSIC 2006 Implementation for the Labour Price Index, Australia 2009* (cat. no. 6345.0.55.001).

The ABS conducts a number of sample surveys of businesses which collect information about wages and salaries. One of these series, Survey of Average Weekly Earnings (AWE), is designed to measure the level of average earnings in Australia at a point in time. Period to period movements for the AWE series are not comparable with those from the wage price index. The two series have different purposes. Consequently, they have different concepts, and use different sample selection and estimation methodologies.

## **INTERPRETABILITY**

The LPI publication (cat. no. 6345.0) contains Explanatory Notes, Appendices and a Glossary that provide information about data sources, terminology and other technical aspects of the series. More detailed information can also be found in the Labour Price Index,

Concepts, Sources and Methods, (cat. no. 6351.0.55.001).

The total hourly rates of pay excluding bonuses index Australia and sector level indexes are the only indexes of the LPI that are seasonally adjusted.

## **ACCESSIBILITY**

For links to data and publications relating to the labour price index and other prices series, please see the Prices Noticeboard.

Additional labour price indexes are available on request. To make enquiries about such data, telephone Luci Burrage on Perth (08) 9360 5151 or email <labour.price.index@abs.gov.au>

## **Quality Declaration - Relevance**

The target population of businesses for the LPI is all employing organisations in Australia (private and public sectors) excluding:

- enterprises primarily engaged in agriculture, forestry or fishing
- private households employing staff
- foreign embassies, consulates, etc.

A sample redesign of the LPI was undertaken and the outcome implemented from December quarter 2009. A result of this review was to stop collecting data on a quarterly basis from micro businesses (0-4 employment). The size and frequency of pay changes for jobs in micro businesses was found to be the same as businesses with employment of five or more. Therefore, micro businesses are now treated as being out of coverage of the LPI but remain in scope through their continued inclusion in the expenditure weights used in compiling the LPI. The introduction of this change does not impact what the LPI is measuring.

All employee jobs in the target population of businesses are in scope of the LPI, with the exception of the following:

- Australian permanent defence force jobs
- non-maintainable jobs (i.e. jobs that are expected to be occupied for less than six months of a year)
- jobs for which wages and salaries are not determined by the Australian labour market (e.g. working proprietors of small incorporated enterprises, most employees of Community Development Employment Programs, and jobs where the remuneration is set in a foreign country).

## **Quality Declaration - Accuracy**

Information for the wage price indexes is collected each quarter by mail questionnaires from a sample survey of private and public sector employers selected from the ABS Business Register. These employers select a sample of jobs from their workplace(s) using instructions

provided by the ABS. Approximately 18,000 jobs are priced each quarter.

## Quality Declaration - Interpretability

Seasonally adjusted estimates are derived by estimating and removing systematic calendar related effects from the original series. In most economic data these calendar related effects are a combination of seasonal influences e.g. the weather, social traditions or administrative practices plus other kinds of calendar related variations, such as the number of trading days, Easter or the proximity of significant days (e.g. Christmas).

Institutional effects largely drive the seasonality of the LPI. Important factors are the timing of effect of Australian workplace agreements and certified agreements, the length of these agreements, and the timing of the implementation of significant wage determinations that impact on rates of pay. A significant institutional change in wage setting arrangements can affect the relative level (or trend) and seasonality of the index.

Recently, the ABS has implemented improved methods of producing seasonally adjusted estimates, focussed on the application of Autoregressive Integrated Moving Average (ARIMA) modelling. Adoption of ARIMA modelling will reduce the extent of revisions to the seasonally adjusted and trend estimates. For more information on the details of ARIMA modelling see feature article: **Use of ARIMA modelling to reduce revisions** in the October 2004 issue of **Australian Economic Indicators** (cat. no. 1350.0).

## Publication (I-Note) - Publication

The wage price indexes in Tables 1 to 10 are updated and released every quarter. The financial year wage price indexes that appear in Tables 2 to 10 are updated each June quarter for the preceding financial year.

The financial year non-wage and labour price indexes in Tables 11 to 21 are compiled and released each September Quarter and refer to the preceding financial year (ending June). A summary of the latest financial year non-wage and labour price indexes is included as an appendix to the December, March, and June quarter releases.

## Time Series Spreadsheet (I-Note) - Time Series Spreadsheet

The wage price indexes in Tables 1, 2b, 3b, 4b, 5b, 7b, 8b and 9b are updated and released every quarter. The corresponding financial year wage price indexes in Tables 2a, 3a, 4a, 5a, 7a, 8a and 9a are updated and released each June quarter for the preceding financial year. There are no financial year indexes created for Table 1.

The financial year non-wage price indexes and labour price indexes in Tables 11 to 21 are compiled and released each September quarter and refer to the preceding financial year (ending June).

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